

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-276542

(43)Date of publication of application : 06.10.2000

(51)Int.Cl. G06F 19/00  
G07G 1/12  
G07G 1/14

(21)Application number : 11-082939

(71)Applicant : JAPAN AVIATION ELECTRONICS  
INDUSTRY LTD  
CHUSHAJO SOGO  
KENKYUSHO:KK

(22)Date of filing : 26.03.1999

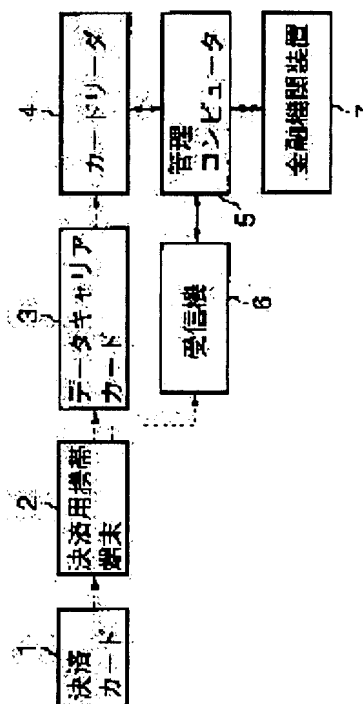
(72)Inventor : ISOBE TOSHIYA  
KOJIMA MASAO  
MORI FUSAO  
OSHIMA TASUKU

## (54) CHARGE SETTLING DEVICE

### (57)Abstract:

PROBLEM TO BE SOLVED: To perform a settlement processing in a short time without modifying a conventional device nor asking a customer to move to a POS register (management computer) 5.

SOLUTION: In this charge settling device, a settlement card 1 on which a financial institution code, an account number or the like is recorded, is read by a portable terminal 2, a card password number is inputted by operating ten keys, a preliminarily stored terminal ID in the terminal 2, the preliminarily inputted terminal password number of a clerk, card data read from a card and the card password number are written in a data carrier card 3, the card 3 is read by a POS register 5, the terminal ID and a terminal password number are collated with them preliminarily prepared, and the card data, the card password number, a merchandise code, a slip number and an amount are sent to a financial institution 7, there by



performing the settlement when they are authenticated.

---

#### LEGAL STATUS

[Date of request for examination] 31.01.2000

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 3324993

[Date of registration] 05.07.2002

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

\* NOTICES \*

JPO and INPIT are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

---

DETAILED DESCRIPTION

---

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the tariff settlement-of-accounts equipment which inputs a personal identification number and performs settlement of a tariff, payment, a cash drawer, transfer, etc. using a settlement-of-accounts card.

[0002]

[Description of the Prior Art] When payment [ in the former having done some shopping at a store and / with a card ], from the location on which the goods are put, it went to the place in which the terminal which inputs a personal identification number is prepared, and the personal identification number was inputted and payment by the card was performed. The terminal which inputs the personal identification number was what connects in code and the thing of an absolute location and the not about a meter thing which can move can move.

[0003] When [ which is depended on the card in a parking lot ] paying, it got off the vehicle at the outlet, and went to the place of an input terminal, the personal identification number was inputted, and payment was finished. Moreover, with the automatic money making a deposit equipment (ATM) of a bank, a personal identification number is inputted from the control unit of the ATM, and making a deposit, a cash drawer, transfer, etc. are performed.

[0004]

[Problem(s) to be Solved by the Invention] When performing payment by the card at the time of the purchase of goods, to the location in which the terminal is prepared, it had to go out specially and was impolite to the visitor. It was troublesome to get off a vehicle one by one in a parking lot, and to carry out tariff settlement of accounts. When especially a personal identification number was inputted, time amount was taken at the outlet and delay had arisen in the large parking lot. Although passing an official in charge a parking ticket and a card at an outlet, without getting off a vehicle, and carrying out tariff settlement of accounts was also performed, also in that case, the processing which performs delivery from the account of a bank, and inquiry processing of the credit to a credit firm took the time amount for about ten seconds with that card, and there was a problem that delay of a vehicle arose in these about ten seconds.

[0005] Also in making a deposit by ATM in a bank etc., the input of a personal identification number took time amount comparatively, and it had become the cause which a matrix produces.

[0006]

[Means for Solving the Problem] According to this invention, the personal digital assistant for settlement of accounts is used. With the personal digital assistant for settlement of accounts The settlement-of-accounts card with which data required for settlement of accounts with a settlement-of-accounts engine were recorded is made to read, and a card personal identification number is inputted. The inputted card personal identification number, The read card data The conventional credit card, a debit card, It makes it possible to settle accounts with management computers, such as a POS register, like the conventional card processing using data carrier card write-in \*\*\*\* of a format, and this data

carrier card like an ATM card, an IC card, etc.

[0007] A means to transmit the card data read to the personal digital assistant for settlement of accounts and the inputted personal identification number on radio is established, a receiving means to receive the wireless and to input into a management computer is established, and it can also replace with processing by the data carrier card.

[0008]

[Embodiment of the Invention] The example of this invention is shown in drawing 1. Data (it is described as card data below) required for settlement of accounts in financial institutions, such as a bank code and the account number, are recorded, these are a debit card, an ATM card, an IC card, etc., and the settlement-of-accounts card 1 inputs and uses a personal identification number.

[0009] The personal digital assistant 2 for settlement of accounts can read the card data of the settlement-of-accounts card 1, or can input and store temporarily data required for settlement of accounts, such as a card personal identification number, and data can be written in the data carrier card 3, or it can carry out them, and an individual can carry it. It is the same as that of an ATM card, a debit card, etc., a magnetic card, an IC card, etc. are constituted, and a data carrier 3 can make a card reader 4 read data. This read data is processed with a management computer 5, it sends to financial institution equipment 7, and settlement-of-accounts processing is carried out. The management computer 5 serves as the cash register (POS register), and a bar code, a slip number, the amount of money, etc. are inputted.

[0010] The data carrier card 3 and a card reader 4 are omitted, the data transmitted from the personal digital assistant 2 for settlement of accounts by the receiver 6 are received, and it can input into a management computer 5. The example applied when goods were purchased at a store and this invention was settled with a debit card is explained. The flow of the whole processing of the detail functional configuration of the personal digital assistant 2 for settlement of accounts to drawing 2 is shown in drawing 3, respectively.

[0011] A salesclerk turns ON the power source of his own personal digital assistant 2 for settlement of accounts, starts it (S1), operates the data input section 25 which consists of a ten key, and inputs a terminal personal identification number (for example, a personnel number and a terminal registration number) (S2). The inputted terminal personal identification number is memorized by the memory section 27. The terminal ID (identifier) which is the information on \*\*\*\* is stored in this personal digital assistant 2 for settlement of accounts at the terminal ID section 21, and, as for a terminal personal identification number, Terminal ID is linked (S3). This terminal ID and a terminal personal identification number are beforehand registered into the management computer 5. The terminal ID of the terminal ID section 21 cannot be changed from the outside, and it is preventing from knowing the contents from the outside.

[0012] The personal digital assistant 2 for settlement of accounts is inserted in reception, he inserts the settlement-of-accounts card 1 in the card reader writer section 24, and a visitor makes the card data of the settlement-of-accounts card 1 read (S4). This read card data is memorized by the memory section 27. Moreover, operate the data input section 25, input a card personal identification number (S5), the memory section 27 is made to memorize, and card data and a card personal identification number are made to link (S6).

[0013] Next, by inputting the data carrier card 3 into the card reader writer section 24, and operating it, said card data, a card personal identification number, Terminal ID, and a terminal personal identification number are made to encipher and link in the encryption section 26, and the linked data is written in the data carrier card 3 (S7). In this condition, the data carrier card 3 will have the terminal personal identification number, Terminal ID, and the card personal identification number other than the data which the usual debit card has. Therefore, with this card 3, it is based on the conventional settlement-of-accounts card, pays, and can process like processing.

[0014] According to the purchased goods, a bar code, a slip number, and the amount of money are inputted into a management computer 5 (S8). The data carrier card 3 is inserted in a card reader 4, and data are made to read. The read data is decoded, the decoded terminal ID and a terminal personal

identification number, and the thing currently beforehand held to the management computer 5 are collated, and it attests that it is data from the just personal digital assistant 2 for settlement of accounts (S9). Card [ being enciphered if the authentication is passed ] data, a card personal identification number, a bar code and a slip number, and the amount of money are linked (S10), and it transmits to financial institution equipment 7 (S11).

[0015] With financial institution equipment 7, card data and a card personal identification number are decoded, justification is checked by the card personal identification number, and it settles failing to subtract the receiving amount of money from the deposit of the account number etc. If this settlement of accounts can be performed, the notice which shows that will be sent to a management computer 5 (S12), and will display and print that settlement-of-accounts propriety with a management computer 5 (S13).

[0016] The data manipulation section 28 performs actuation of data reading by the personal digital assistant 2 for settlement of accounts, writing, encryption, transmission, etc. The data carrier card 3 may not be used, but said enciphered data may be transmitted to a receive section 6 by infrared radiation, an electric wave, etc. from the data transmitting section 23, and the data received in the receive section 6 may be inputted into a management computer 5. The example of an appearance of the personal digital assistant for settlement of accounts is shown in drawing 4. The body 200 is carrying out the shape of a thin rectangular case, the data input section 25 of a ten key, the data display machine section 29, and the data manipulation section 28 are formed in the whole surface, the slot 201 which met one side face at the longitudinal direction is formed, and it carries out insertion migration of the magnetic card, and performs reading or writing. The hole 202 for IC card insertion is formed in the center section of this slot 201 for card insertion. In the body 200, the magnetic card reader writer 203 is formed in 1 side of the slot 201 for card insertion, and IC card reader writer 204 is formed near the hole 202 for IC card insertion. The magnetic card reader writer 203 and IC card reader writer 204 are shifted mutually, and the reading write-in function seems to try not to fall by insertion and detachment of the card of another side mutually so that an IC card may not contact the magnetic card reader writer 203, when an IC card is inserted in a hole 202, without carrying out card contact with IC card reader writer 204 when it lets a magnetic card pass into a slot 201. The data transmitting section 23 is arranged at the one corner section of the body 200.

[0017] Next, the example which applied this invention to settlement of the parking fee in a parking lot is explained. The whole configuration is shown in drawing 5, the functional configuration of each part is shown in drawing 6, respectively, and the flow of processing is shown in drawing 7. The visitor using a parking lot starts the power source of the personal digital assistant 2 for settlement of accounts as ON (S1), operates the data input section 25, inputs a terminal personal identification number, and memorizes in the memory section 27 (S2). The terminal ID of a terminal personal identification number and the terminal ID section 21 is linked (S3).

[0018] Insert the settlement-of-accounts card 1 in this personal digital assistant 2 for settlement of accounts at the card reader writer section 24, card data are made to read, and it memorizes in the memory section 27 (S4). Furthermore, the data input section 25 is operated, a card personal identification number is inputted, and it memorizes in the memory section 27 (S5). If the switch of the data manipulation section 28 is pushed, the card data memorized by the memory section 27, a card personal identification number, Terminal ID, and a terminal personal identification number will be enciphered in the encryption section 26, respectively, and it will transmit from the data transmitting section 23 (S6).

[0019] It is received by the inlet-port receiver 8 formed in the inlet port of a parking lot, and this transmit data is inputted into a management computer 5. Furthermore, when Terminal ID and the terminal personal identification number which were enciphered are decrypted in the decryption section 58, collate the decrypted terminal ID, the terminal ID which has stored the terminal personal identification number beforehand in ID authentication / collating section 53, and a terminal personal identification number (S7) and pass this authentication, the gate is made to enable passage of delivery and a car for the control signal which opens this from the gate control section 47 (S8). Under the present circumstances, entrance time of day is acquired from the clock section 55, and correspondence with this

and Terminal ID is recorded on the settlement-of-accounts processing section 54. The enquiry Management Department 52 performs a delivery enquiry inquiry for the card data and the card personal identification number which were enciphered to the tariff settlement-of-accounts machine 7 through the modem section 56 (S9).

[0020] The encryption data sent from the management computer 5 in the tariff settlement-of-accounts machine 7 are received in the modem section 71. When decrypt in the decryption section 76, the card data (the bank code, account number) and the card personal identification number which were decrypted are attested in the authentication section 73, it investigates whether it is a right card personal identification number and it is passed, at the enquiry Management Department 74 It refers for whether sufficient balance of a parking fee to pay is in the account number, and the reply of the existence of the balance is sent to a management computer 5 through the modem section 71. A management computer 5 will memorize reply enquiry data in the settlement-of-accounts processing section 54 with the terminal ID which has carried out correspondence storage, and entrance time of day, if this reply enquiry data is received (S10). In addition, that collating which is the tariff settlement-of-accounts machine 7 when the settlement-of-accounts card 1 is a KUREJJITTO card, and may carry out tariff settlement of accounts with a card about the credit card is performed, and if it passes, that will be notified to a management computer 5.

[0021] In the case of participation, the terminal ID enciphered from the personal digital assistant 2 for settlement of accounts at the outlet, a terminal personal identification number, card data, and a card personal identification number are transmitted by the data transmitting section 23, the outlet receiver 9 in which this was prepared at the outlet receives, and it inputs into a management computer 5 (S11). A management computer decodes the terminal ID and a terminal personal identification number, and calculates a parking fee in the settlement-of-accounts processing section 54 from the terminal ID, corresponding entrance time of day, and the time of day at the time of participation (current time) (S12). If trust is given with reply enquiry data about the decoded terminal ID, participation will be permitted, a control signal will be sent out from the gate control section 57, the gate will be opened, and it will enable it to participate a car (S13).

[0022] Then, the enciphered card data, a card personal identification number, and the calculated parking fee are remitted to the tariff settlement-of-accounts machine 7 through the modem section 56 (S14). In the tariff settlement-of-accounts machine 7, if the data received in the modem section 71 are decrypted in the decryption section 76, authentication about a card personal identification number is performed in the authentication section 73 and this is passed, in the tariff settlement-of-accounts section 75, a parking fee will fail to lengthen from the deposit of the account number, and it will deposit to the account number of a parking lot. Termination of this settlement-of-accounts processing sends the notice of settlement-of-accounts termination to a management computer 5. In a management computer 5, reception of the notice of settlement-of-accounts termination memorizes that to the correspondence terminal ID of the settlement-of-accounts processing section 54 (S15).

[0023] Thus, a visitor does not need to get down from a car that what is necessary is just to operate the personal digital assistant 2 for settlement of accounts. Moreover, only the time amount which could open the gate immediately only by carrying out reception authentication of that terminal ID at the time of participation by referring for whether that visitor has settlement-of-accounts capacity to a settlement-of-accounts engine during parking, and could perform settlement-of-accounts processing after that, and this settlement-of-accounts processing took can shorten the processing time in an outlet, and participation processing can be carried out quickly.

[0024] After carrying out tariff settlement of accounts with a prior settlement-of-accounts machine before riding in a vehicle, in case it comes from a parking lot, there is a parking lot which passes the settlement-of-accounts ticket to the outlet gate, and participates. In this case, the processing at the time of the entrance which can be set is the same as the processing shown in drawing 7 . If card data and a card personal identification number are transmitted to a prior settlement-of-accounts machine (management computer) from the personal digital assistant 2 for settlement of accounts Terminal ID, and if needed [ a terminal personal identification number and if needed ] as shown in drawing 8 at the

time of participation (S1), and a prior settlement-of-accounts machine receives this data. If a parking fee is calculated from participation time of day (current time) and entrance time of day (S2), the settlement-of-accounts processing is substituted for the financial institution equipment which transmits card data, a card personal identification number, and a tariff to financial institution equipment (S3) and the notice is received from financial institution equipment. That is saved as finishing [ processing ] to the data with which the settlement-of-accounts processing section corresponds (S4). At the gate of an outlet, to an outlet receiver, Terminal ID is transmitted from the personal digital assistant for settlement of accounts (S5), and it attests to the terminal ID, and if it passes, participation will be permitted and the gate will be opened (S6).

[0025] Next, the example which applied this invention to the account transfer by ATM is explained with reference to drawing 9. A bank clerk starts the power source of the personal digital assistant for settlement of accounts as ON (S1), and operate a ten key, input a terminal personal identification number (S2), a terminal personal identification number and Terminal ID are made to link, and it memorizes in the memory section (S3). Reception and a visitor make the personal digital assistant for settlement of accounts read a settlement-of-accounts card for this personal digital assistant for settlement of accounts, and a visitor does the sequential input of (S4) and also the change \*\*\*\*\* amount of money, a change previous application seat number, and the card personal identification number, and memorizes in the memory section (S5, S6, S7). Card data, the amount of money, a card personal identification number, a change previous application seat number, Terminal ID, and a terminal personal identification number are linked (S8).

[0026] This linked data is made to write in a data carrier card, this data carrier card is inserted in the settlement-of-accounts card slot of an ATM terminal, and an ATM terminal (management computer) is made to read. If authentication of the Terminal ID and the terminal personal identification number which received within the ATM terminal is performed and (S9) and authentication are passed, card data, a card personal identification number, the amount of money, and a change previous application seat number will be sent to financial institution equipment (S10). With financial institution equipment, the received card encryption number is attested, if it passes, the amount of money which received from the account of the account number in card data will be handed over, and the account of a change previous application seat number which received will be paid. If this processing ends, it will indicate that change ended that notice of termination to the display of an ATM terminal when delivery and an ATM terminal received the notice of termination to the ATM terminal (S12).

[0027] Thus, in order to perform the input of the amount of money, the input of a change previous application seat number, and the input of a card personal identification number and to make these read at once to an ATM terminal with a data carrier card to the personal digital assistant for settlement of accounts, the time amount which occupies the ATM terminal as compared with the case where a visitor performs said each input directly is remarkably shortened to an ATM terminal. Not only change but in each processing of payment and a cash drawer, time amount using an ATM terminal can be short-\*\*\*\* (ed) by applying this invention similarly.

[0028] In \*\*\*\*, in the personal digital assistant and others for settlement of accounts, as it will be eliminated once a card personal identification number is read, and it does not remain anywhere, it raises safety. Moreover, for example using a timer, if fixed time amount progress is carried out, a card personal identification number will be eliminated. In this case, in the example of said parking lot, since card data and a card personal identification number are needed by settlement of participation processing when sending card data and a card personal identification number by entrance processing and performing an enquiry inquiry, it is necessary to reinput a card personal identification number to the personal digital assistant for settlement of accounts after transmitting data by entrance.

[0029] This invention is applicable to tariff settlement of accounts in the location accompanied by entrance and participation not only in a parking lot but the limited fields, such as a taxi, an amusement park, a theme park, a hotel, an aircraft, and the Shinkansen. Moreover, even if it makes a card reader read a settlement-of-accounts card directly and makes it make a personal identification number input, without using the personal digital assistant for settlement of accounts in such a case, the duration in

participation can be shortened by performing an enquiry inquiry from the entrance before participation. [0030] \*\*\*\* -- setting -- Terminal ID -- two or more -- preparing -- one of them -- the object for authentication -- carrying out -- this -- the exterior to \*\*\*\* -- although -- it shall not see, another terminal ID is made into data processing, and it is referred to as ID which can be seen, and it is used in order to use for management of the personal digital assistant for settlement of accounts with the terminal ID or to attach use hysteresis. The input amount of money can also be changed to the account of the account number of the 2nd settlement-of-accounts card from the account of the account number of the 1st settlement-of-accounts card by making the card reader section read the 2nd settlement-of-accounts card, and inputting the card personal identification number by actuation of a ten key instead of operating a change previous application seat number in the case of the change mentioned above, and inputting a ten key into it.

[0031] In \*\*\*\*, although card data, the card personal identification number, Terminal ID, and the terminal personal identification number were written in the data carrier card, you may also write in the settlement-of-accounts card 1. When predetermined time passed and it changes into such a condition of being in the condition which the inquiry for the balances and authorization in an enquiry inquiry gave previously that pay and a tariff exceeds a possible frame after coming in and performing an enquiry inquiry in the tariff settlement of accounts accompanied by entrance and participation like said parking lot, an enquiry inquiry whether payment is possible can be performed to a tariff higher than last time.

[0032]

[Effect of the Invention] As stated above, when performing payment by the card, for example at the time of goods purchase, I do not need to have you move to the location where the card processing terminal was prepared for the visitor in the equipment using a data carrier card, and a salesclerk should just do going processing to the place of a card processing terminal (management computer) with a data carrier card.

[0033] And without [ that is, ] converting using the same thing as the conventional thing, with having inserted the settlement-of-accounts card in the direct card processing terminal, and having processed it, similarly, a data carrier card can be inserted in a card processing terminal, and the card processing terminal can process it. Without the same being said of processing with an ATM terminal, and converting an ATM terminal, this can make a data carrier card able to read and can shorten the time amount which moreover occupies the ATM terminal.

[0034] Although it is necessary to establish a receive section in a management computer side especially to carry out data transmission from the data transmitting section of the personal digital assistant for settlement of accounts, the time and effort for making a management computer read the writing of the data to a data carrier card and the data of a data carrier card is omissible. By holding inquiry for the balances and authorization enquiry in the tariff settlement of accounts accompanied by entrance and participation from entrance before participation like a parking lot, it can be made to be able to participate only according to authentication of Terminal ID and a terminal personal identification number at an outlet, tariff settlement-of-accounts processing can be performed after that, and participation processing at an outlet can be performed quickly.

---

[Translation done.]